

CLAIMS

1. A method of driving a self-luminescent display apparatus having self-luminescent elements arranged in a pattern of matrix and each of pixel circuits provided in association with each of said self-luminescent elements, said method comprising the steps of:

applying a gray level current corresponding to a display gray level to each of said pixel circuits for a first period;

applying a display current based on said gray level current to said self-luminescent elements during a second period succeeding said first period to display corresponding said display gray level; and

applying a precharge current to said self-luminescent elements during a third period before said first period on the basis of a predetermined first condition.

2. The method of driving a self-luminescent display apparatus according to claim 1, wherein said third period is varied depending on a display gray level that provides a display current applied to said self-luminescent elements.

3. The method of driving a self-luminescent display apparatus according to claim 1, wherein a current value

corresponding to a display gray level of display provided by said self-luminescent elements in a predetermined row on the same column of said matrix is compared with a current value corresponding to a display gray level of display to be provided by said self-luminescent elements in a row next to said predetermined row, and

as said predetermined first condition, if a difference between said current values has a value equal to or larger than at least a predetermined value, when said next row is displayed, the precharge current is applied to said self-luminescent elements in said next row during said third period.

4. The method of driving a self-luminescent display apparatus according to claim 3, wherein said third period is varied depending on the magnitude of said difference.

5. The method of driving a self-luminescent display apparatus according to claim 1 or 3, wherein the current value corresponding to the display gray level of the display provided by said self-luminescent elements in the predetermined row on the same column of said matrix is compared with the current value corresponding to the display gray level of the display to be provided by said self-luminescent elements in the row next to said predetermined row, and as said predetermined first condition, if the difference between said current values

has a value smaller than a predetermined value, when said self-luminescent elements in said next row provide display, said precharge current is not applied.

6. The method of driving a self-luminescent display apparatus according to claim 1, wherein as said predetermined first condition, if the display gray level of display provided by said self-luminescent elements has a current value corresponding to black display, when said display gray level is displayed, said precharge current is not applied.

7. The method of driving a self-luminescent display apparatus according to claim 1, wherein a value for said precharge current is a current value corresponding to white display.

8. The method of driving a self-luminescent display apparatus according to claim 1, wherein said third period is selected from a group of third periods corresponding to a plurality of pulse lengths prepared for a driving circuit.

9. The method of driving a self-luminescent display apparatus according to claim 1, further comprising a step of applying a predetermined voltage to said self-luminescent elements during a fourth period before said third period on the basis of a predetermined second condition.

10. The method of driving a self-luminescent display apparatus according to claim 9, wherein the current value corresponding to the display gray level of the display provided by said self-luminescent elements in the predetermined row on the same column of said matrix is compared with the current value corresponding to the display gray level of the display to be provided by said self-luminescent elements in the row next to said predetermined row, and as said predetermined second condition, if the difference between said current values has a value equal to or larger than a predetermined value, when said self-luminescent elements in said next row provide display, said predetermined voltage is applied to said self-luminescent elements in said next row during said fourth period.

11. The method of driving a self-luminescent display apparatus according to claim 9, wherein as said predetermined second condition, if the display gray level of the display provided by said self-luminescent elements has a current value corresponding to the black display, when said display gray level is displayed, said predetermine voltage is applied to said self-luminescent elements during said fourth period.

12. The method of driving a self-luminescent display apparatus according to claim 9, wherein said

predetermined voltage is equal to a voltage corresponding to a value for a current applied during a last display provided by said self-luminescent elements or corresponds to low gray level color display.

13. The method of driving a self-luminescent display apparatus according to claim 12, wherein said first voltage corresponds to the voltage for black display.

14. A display control device for a self-luminescent display apparatus having self-luminescent elements arranged in a pattern of a matrix and each of pixel circuits provided in association with each of said self-luminescent elements, said self-luminescent display apparatus applying a gray level current corresponding to a display gray level to each of said pixel circuits for a first period, and applying a display current based on said gray level current to said self-luminescent elements during a second period succeeding said first period to display the corresponding said display gray level, said display control device comprising:

precharge current applying instrument of applying a precharge current to said self-luminescent device during a third period before said first period on the basis of a predetermined first condition.

15. The display control device for the self-luminescent display apparatus according to claim 14, wherein said third period is varied depending on a display gray level that provides a display current applied to said self-luminescent elements.

16. The display control device for the self-luminescent display apparatus according to claim 14, wherein a current value corresponding to a display gray level of display provided by said self-luminescent elements in a predetermined row on the same column of said matrix is compared with a current value corresponding to a display gray level of display to be provided by said self-luminescent elements in a row next to said predetermined row, and as said predetermined first condition, if a difference between said current values has a value equal to or larger than a predetermined value, when said next display is displayed, the precharge current is applied to said self-luminescent elements in said next row during said third period.

17. The display control device for the self-luminescent display apparatus according to claim 16, wherein said third period is varied depending on the magnitude of said difference.

18. The display control device for the self-luminescent display apparatus according to claim 14 or 16, wherein

the current value corresponding to the display gray level of the display provided by said self-luminescent elements in the predetermined row on the same column of said matrix is compared with the current value corresponding to the display gray level of the display to be provided by said self-luminescent elements in the row next to said predetermined row, and as said predetermined first condition, if the difference between said current values has a value smaller than a predetermined value, when said self-luminescent elements in said next row provide display, a precharge current is not applied.

19. The display control device for the self-luminescent display apparatus according to claim 14, wherein as said predetermined first condition, if the display gray level of display provided by said self-luminescent elements has a current value corresponding to black display, when said display gray level is displayed, said precharge current is not applied.

20. The display control device for the self-luminescent display apparatus according to claim 14, wherein a value for said precharge current is a current value corresponding to the value for white display.

21. A current output driving circuit for a self-luminescent display apparatus having self-luminescent elements arranged in a pattern of a

matrix and each of pixel circuits provided in association with each of said self-luminescent elements, said self-luminescent display apparatus applying a gray level current corresponding to a display gray level to each of said pixel circuits for a first period, and applying a display current based on said gray level current to said self-luminescent elements during a second period succeeding said first period to display corresponding said display gray level, said current output driving circuit applying a precharge current to said self-luminescent device during a third period before said first period on the basis of a predetermined first condition, the current output driving circuit comprising:

third period generating instrument which simultaneously generates a plurality of said third periods having different time lengths.

22. The current output driving circuit for the self-luminescent display apparatus according to claim 21, wherein said plurality of third periods are generated on the basis of pulse lengths used when said precharge current is applied.

23. The current output driving circuit for the self-luminescent display apparatus according to claim 21, wherein said current output driving circuit is used as a current output source driver circuit.



24. A self-luminescent display apparatus comprising:  
self-luminescent elements arranged in a pattern of  
a matrix;

each of pixel circuits provided in association with  
each of said self-luminescent elements; and

a driving circuit that drives said self-luminescent  
elements and said pixel circuit,

wherein said driving circuit has at least one of the  
current output driving circuit according to claim 21.

25. A self-luminescent display apparatus comprising:  
self-luminescent elements arranged in a pattern of  
a matrix;

each of pixel circuits provided in association with  
each of said self-luminescent elements;

the display control device for the self-luminescent  
display apparatus according to claim 14; and the current  
output driving circuit for the self-luminescent display  
apparatus according to claim 21,

wherein said display control device performs an  
operation for application of said precharge current.

26. The self-luminescent display apparatus according to  
claim 24 or 25, wherein said self-luminescent elements  
are organic EL elements.

27. Electronic equipment comprising the self-luminescent display apparatus according to claim 26 as display instrument.

28. The electronic equipment according to claim 21, wherein the electronic apparatus is used as a television.

29. A program for allowing a computer to execute a step of applying a gray level current corresponding to a display gray level to each of said pixel circuits for a first period, a step of applying a display current based on said gray level current to said self-luminescent elements during a second period succeeding said first period to display the corresponding said display gray level, and a step of applying a precharge current to said self-luminescent device during a third period before said first period on the basis of a predetermined first condition, the steps being included in the method of driving the self-luminescent display apparatus according to claim 1.

30. A recording medium on which the program according to claim 29 is recorded, wherein the recording medium can be processed by a computer.